urges administrations

1 when authorizing stations of the aeronautical radionavigation service, to assign frequencies giving priority to the band below 5 091 MHz;

2 when assigning frequencies in the band 5 091 - 5 150 MHz before 1 January 2010 to stations of the aeronautical radionavigation service or to stations of the fixed-satellite service providing feeder links of the non-geostationary-satellite mobile-satellite service (Earth-to-space), to take all practicable steps to avoid mutual interference between them,

instructs ITU-R

1 to study the technical and operational issues relating to sharing of this band between the aeronautical radionavigation service and the fixed-satellite service providing feeder links of the non-geostationary-satellite mobile-satellite service (Earth-to-space);

2 to bring the results of these studies to the attention of WRC-2001,

invites

1 ICAO to further review, within the same time-frame, detailed spectrum requirements and planning for international standard aeronautical radionavigation systems in the above-mentioned band;

2 all members of ITU-R, and especially ICAO, to participate actively in such studies,

requests the Secretary-General

to bring this Resolution to the attention of ICAO.

RESOLUTION COM5-4

ALLOCATION OF FREQUENCIES TO THE FIXED-SATELLITE SERVICE (SPACE-TO-EARTH) IN THE BAND 15.4 - 15.7 GHz FOR FEEDER LINKS OF NON-GEOSTATIONARY-SATELLITE NETWORKS IN THE MOBILE-SATELLITE SERVICE

The World Radiocommunication Conference (Geneva, 1995),

considering

a) that this Conference has added an allocation to the fixed-satellite service in the band 15.4 - 15.7 GHz for feeder links of non-geostationary satellite networks in the mobile-satellite service in the space-to-Earth direction;

b) that this band is shared with the aeronautical radionavigation service and certain limitations have been placed on the fixed-satellite service, as specified in No. **[865A] S5.511A** of the Radio Regulations;

c) that the adjacent band 15.35 - 15.4 GHz is allocated to the radio astronomy service and other passive services, and that protection from harmful interference due to emissions from space stations is needed (see No. **[865A] S5.511A** of the Radio Regulations),

resolves

1 to invite ITU-R, as a matter of urgency, to carry out studies in preparation for the Conference Preparatory Meeting of the next competent conference, namely the 1997 World Radiocommunication Conference (WRC-97), with a view to:

1.1 reviewing the power flux-density values given in No. **[865A] S5.511A** of the Radio Regulations relating to allocations in the band 15.4 - 15.7 GHz (space-to-Earth);

1.2 determining the out-of-band emission limits to be applied to space station assignments in the band 15.4 - 15.7 GHz for the protection of services in the band 15.35 - 15.4 GHz;

1.3 recommending that WRC-97 consider this subject,

urges administrations

to participate actively in the aforementioned studies by submitting contributions to ITU-R,

instructs the Director of the Radiocommunication Bureau

to report on the results of these studies to WRC-97.

RESOLUTION COM5-5

POWER FLUX-DENSITY LEVEL APPLICABLE IN THE FREQUENCY BAND 137 - 138 MHz SHARED BY THE MOBILE-SATELLITE SERVICE AND TERRESTRIAL SERVICES

The World Radiocommunication Conference (Geneva, 1995),

noting

a) the provisions of Nos. **S5.204**, **S5.206** and **S5.208** of the Radio Regulations;

b) the recommendations of the Conference Preparatory Meeting (CPM-95) with regard to No. **S5.208** of the Radio Regulations;

c) Question ITU-R 84/8 assigned to Study Group 8,

considering

a) that the mobile-satellite service has allocations on a primary basis in several bands between 137 and 138 MHz;

b) that the coordination under Resolution **46(Rev.WRC-95)** required in No. **S5.208** of the Radio Regulations is currently based on a power flux-density threshold level for coordination with terrestrial services of -125 dB(W/m^2/4 kHz) for the mobile-satellite service in these bands;

c) that there are systems of the aeronautical mobile (OR) service which operate on a primary basis in accordance with Nos. **S5.204** and **S5.206** of the Radio Regulations;

d) that CPM-95 indicated that the power flux-density threshold level of -125 dB(W/m^2/4 kHz) for coordination with terrestrial services is appropriate at this time;

e) that CPM-95 also indicated that, for aeronautical mobile (OR) service systems operating in accordance with Nos. **S5.204** and **S5.206** of the Radio Regulations, further study is required in order to assess sharing between such systems and systems of the space services which have allocations in the band 137 - 138 MHz;

f) that non-geostationary-satellite meteorological and space operations satellites have been operating for many years in the 137 - 138 MHz band with power flux-density levels of the order of -125 dB(W/m^2/4 kHz) with no reported interference to terrestrial services, including the aeronautical mobile (OR) service;

g) that non-geostationary-satellite mobile satellite systems planning to use these bands are at an advanced stage of implementation,

resolves

1 to invite ITU-R to study, as a matter of urgency, and taking note of *considering* a) to g) above:

i) sharing between the space services, including the mobile-satellite service, and the aeronautical mobile (OR) service;

ii) the basis for a power flux-density threshold in the band 137 - 138 MHz, in order to confirm or revise the current threshold level used to trigger coordination; and

iii) the possibility of having a recommendation available for consideration at the 1997 World Radiocommunication Conference (WRC-97);

2 that, in the interim period until WRC-97, information submitted by administrations to the Radiocommunication Bureau on non-geostationary mobile-satellite service systems proposed to operate in these bands should be sent by the Radiocommunication Bureau to those administrations listed in Nos. **S5.204** and **S5.206** of the Radio Regulations;

3 that, in the interim period until WRC-97, administrations proposing mobile-satellite service systems utilizing these bands, consult with those administrations employing aeronautical mobile (OR) in these bands on a primary basis, upon request, in order to resolve any difficulties regarding their systems.

RESOLUTION COM5-6

ALLOCATION OF FREQUENCIES TO THE FIXED-SATELLITE SERVICE (EARTH-TO-SPACE) IN THE BAND 15.45 - 15.65 GHz FOR USE BY FEEDER LINKS OF NON-GEOSTATIONARY SATELLITE NETWORKS OPERATING IN THE MOBILE-SATELLITE SERVICE

The World Radiocommunication Conference (Geneva, 1995),

considering

a) that this Conference has added an allocation to the fixed-satellite service in the band 15.45 - 15.65 GHz for use by feeder links of non-geostationary-satellite networks in the mobile-satellite service in the Earth-to-space direction;

b) that this band is shared with the aeronautical radionavigation service and certain limitations have been placed on the fixed-satellite service, as specified in No. **S5.511C** of the Radio Regulations;

c) that the requirements of feeder links (Earth-to-space) of non-geostationary-satellite systems in the mobile-satellite service need to be accommodated in this band,

recognizing

a) that No. **953** of the Radio Regulations applies to the use of these bands by aeronautical radionavigation services;

b) that feeder-link earth stations will be small in number and widely separated,

resolves

1 to invite ITU-R, as a matter of urgency, to carry out studies in preparation for the Conference Preparatory Meeting of the next competent conference (WRC-97), with respect to the sharing criteria and interference mitigation techniques necessary to permit the continued development in this band of all of the services to which it is allocated;

2 that WRC-97 should consider this subject,

also resolves

that the provisions of No. **S5.511C** of the Radio Regulations shall become effective on 18 November 1995,

urges administrations

to participate actively in the aforementioned studies by submitting contributions to ITU-R,

instructs the Director of the Radiocommunication Bureau

to report on the progress of these studies to WRC-97.

RESOLUTION COM5-7

DEVELOPMENT OF INTERFERENCE CRITERIA AND METHODOLOGIES FOR COORDINATION BETWEEN FEEDER LINKS OF NON-GEOSTATIONARY-SATELLITE NETWORKS IN THE MOBILE-SATELLITE SERVICE AND GEOSTATIONARY-SATELLITE NETWORKS IN THE FIXED-SATELLITE SERVICE IN THE BANDS 19.3 - 19.6 GHz AND 29.1 - 29.4 GHz

The World Radiocommunication Conference (Geneva, 1995),

considering

a) that this Conference made provision for use of the bands 19.3 - 19.6 GHz and 29.1 - 29.4 GHz by feeder links of non-geostationary-satellite networks in the mobile-satellite service (non-GSO/MSS);

b) that coordination between feeder links of non-GSO/MSS networks, and geostationary-satellite networks in the fixed-satellite service (GSO/FSS) and terrestrial networks in these bands will be in accordance with Resolution **46(Rev.WRC-95)**;

c) that the Report of the Conference Preparatory Meeting (CPM) to this Conference recognized that coordination between feeder links of non-GSO/MSS networks and GSO/FSS networks would become more difficult as the number of satellite systems that are implemented increased;

d) that simultaneous operation of GSO/FSS networks and feeder links of non-GSO/MSS networks will in most cases result in short-term, high-level interference between such networks, unless interference mitigation techniques are applied by both types of network;

e) that the CPM Report to this Conference concluded that "by the use of interference reduction mechanisms, frequency sharing may be possible at 20 and 30 GHz in some cases";

f) that no ITU-R Recommendations have been developed on coordination methodologies and permissible interference for non-GSO/MSS feeder links, while permissible interference criteria for GSO networks proposed in the CPM Report to this Conference may require further refinements;

g) that permissible interference criteria would facilitate determination of the most appropriate interference mitigation techniques;

h) that No. **S5.535B [882j]** of the Radio Regulations requires the use of interference mitigation techniques in order to facilitate coordination of feeder links of non-GSO/MSS networks with GSO/FSS networks;

i) that, in addition to permissible interference criteria, an agreed method for calculating mutual interference between feeder links of non-GSO/MSS networks and GSO/FSS networks is required;

j) that the development and implementation of interference mitigation techniques would facilitate the coordination of feeder links of non-GSO/MSS networks with GSO/FSS networks when the interference between such networks exceeds the applicable permissible interference criteria,

recognizing

that, while ITU-R is developing Recommendations on coordination methodologies, coordination between feeder links of non-GSO/MSS networks and GSO/FSS networks will be carried out by administrations using mutually acceptable sharing criteria,

resolves to invite ITU-R

1 to undertake, as a matter of urgency, the development of appropriate permissible interference criteria for both non-GSO/MSS feeder links and GSO/FSS networks operating in the bands 19.3 - 19.6 GHz and 29.1 - 29.4 GHz;

2 to undertake, as a matter of urgency, studies of interference mitigation techniques (including, *inter alia*, uplink adaptive power control and fade compensation techniques) which would facilitate coordination between non-GSO/MSS feeder links and GSO/FSS networks;

3 to undertake, as a matter of urgency, studies to develop coordination methodologies for GSO/FSS networks and non-GSO/MSS feeder links operating in the bands 19.3 - 19.6 GHz and 29.1 - 29.4 GHz on an equal basis,

urges administrations

to participate actively in the aforementioned studies by submitting contributions to ITU-R,

instructs the Director of the Radiocommunication Bureau

to report on the progress of these studies to WRC-97.

RESOLUTION COM5-8

SHARING STUDIES RELATING TO CONSIDERATION OF THE ALLOCATION OF BANDS BELOW 1 GHz TO THE NON-GEOSTATIONARY MOBILE-SATELLITE SERVICE

The World Radiocommunication Conference (Geneva, 1995),

considering

a) that the agenda of this Conference included consideration of the requirements of the mobile-satellite service (MSS) and, if necessary, the adoption of limited allocations for the MSS;

b) that the Conference Preparatory Meeting 1995, in its Report, indicated that, in order to meet projected MSS requirements below 1 GHz , a range of an additional 7 to 10 MHz will be required in the near future;

c) that several administrations made proposals to this Conference to allocate additional spectrum on a worldwide basis for non-geostationary-satellite networks in the mobile-satellite service (non-GSO/MSS) below 1 GHz;

d) that new technologies of some radiocommunication services, especially within the terrestrial mobile and broadcasting services, which require spectrum below 1 GHz, may have an impact on the sharing possibilities;

e) that non-GSO/MSS systems operating below 1 GHz have undergone advance publication by the Radiocommunication Bureau and that administrations may seek to implement further such systems;

f) that there is an urgent need to make additional spectrum available on a worldwide basis for non-GSO/MSS systems operating below 1 GHz;

g) that the requirements for the introduction of these new technologies have to be balanced,

considering further

that the bands below 1 GHz are extensively used by many services,

noting

that, after appropriate studies, there may be other bands below 1 GHz which could also be considered suitable for a worldwide allocation to non-GSO/MSS,

resolves

1 that further studies are urgently required on operational and technical means to facilitate sharing between the non-GSO/MSS and other radiocommunication services having allocations and operating below 1 GHz;

2 that the 1997 World Radiocommunication Conference (WRC-97) be invited to consider, on the basis of the results of the studies referred to in *resolves* 1 above, additional allocations on a worldwide basis for the non-GSO/MSS below 1 GHz;

3 that the relevant international organizations be invited to participate in these sharing studies,

invites ITU-R

1 to study and develop Recommendations, as a matter of urgency, on the technical and operational issues relating to sharing between services having allocations and the non-GSO/MSS below 1 GHz, in the bands proposed to this Conference by several administrations and in other frequency bands, as necessary;

2 to bring the results of these studies to the attention of WRC-97 and the relevant preparatory meetings,

urges administrations

1 to participate actively in these studies;

2 to submit reports on their technical, operational and frequency sharing experience with non-GSO/MSS systems operating below 1 GHz.

RESOLUTION COM5-9

STUDIES CONCERNING SHARING BETWEEN THE RADIONAVIGATION-SATELLITE SERVICE AND THE MOBILE-SATELLITE SERVICE IN THE BANDS 149.9 - 150.05 MHz AND 399.9 - 400.05 MHz

The World Radiocommunication Conference (Geneva, 1995),

considering,

a) that the bands 149.9 - 150.05 MHz and 399.9 - 400.05 MHz are allocated to and used by radionavigation-satellite service (RNSS) on a primary basis;

b) that the World Administrative Radio Conference (Malaga-Torremolinos, 1992) allocated the band 149.9 - 150.05 MHz (Earth-to-space) to the land mobile-satellite service on primary basis;

c) that this Conference has allocated the band 399.9 - 400.05 MHz (Earth-to-space) to the land mobile-satellite service;

d) that requirements of the RNSS and the mobile-satellite service (MSS) should be met in these frequency bands;

e) that the MSS requirements are not limited solely to use by the land mobile-satellite service;

f) that there may be difficulties in the sharing between the RNSS and the MSS;

g) that there is a need to study the operational and technical means to facilitate sharing between the RNSS and the MSS (in the Earth-to-space and space-to-Earth directions) in these bands,

recognizing

that No. **953** of the Radio Regulations applies to the use of these bands by the RNSS,

resolves

to invite ITU-R, as a matter of urgency, in preparation for the Conference Preparatory Meeting for the 1997 World Radiocommunication Conference (WRC-97), to carry out studies in order to identify the operational and technical measures necessary to facilitate sharing between the MSS and the RNSS,

instructs the Secretary-General

to bring this Resolution to the attention of the Council, at its next session, with a view to including this item in the agenda of WRC-97,

urges

1 administrations to participate in such studies by submitting contributions to ITU-R relating to the above-mentioned studies as soon as possible;

2 ITU-R to bring the results of these studies to the attention of WRC-97 and of preparatory meetings, in order to determine operational criteria for sharing between the RNSS and the MSS.

RESOLUTION COM5-10

USE OF THE FREQUENCY BANDS 1 980 - 2 010 MHz AND 2 170 - 2 200 MHz IN ALL THREE REGIONS AND 2 010 - 2 025 MHz AND 2 160 - 2 170 MHz IN REGION 2 BY THE FIXED- AND MOBILE-SATELLITE SERVICES AND ASSOCIATED TRANSITION ARRANGEMENTS

The World Radiocommunication Conference (Geneva, 1995),

considering

a) that the World Administrative Radio Conference (WARC-92) allocated the bands 1 980 - 2 010 MHz and 2 170 - 2 200 MHz for the mobile-satellite service with a date of entry into force of 1 January 2005, these allocations being co-primary with fixed and mobile service allocations;

a)bis that the use of the frequency bands 1 980 - 2 010 MHz and 2 170 - 2 200 MHz in all three Regions and 2 010 - 2 025 MHz and 2 160 - 2 170 MHz in Region 2 by the mobile-satellite service (MSS) is subject to a date of entry into force of 1 January 2000 or 1 January 2005, in accordance with the provisions of Nos. **S5.389A, S5.389C** and **S5.389D** of the Radio Regulations, as adopted by this Conference;

b) that these bands are shared with the fixed and mobile[1] services on a primary basis and that they are widely used by the fixed service in many countries;

c) that the studies made have shown that, while sharing of the MSS with the fixed service in the short to medium term would be generally feasible, in the long term sharing will be complex and difficult in both bands, so that it would be advisable to transfer the fixed service stations operating in the bands in question to other segments of the spectrum;

d) that for many developing countries, the use of the 2 GHz band offers a substantial advantage for their radiocommunication networks and that it is not attractive to transfer these systems to higher frequency bands because of the economic consequences that this would entail;

e) that in response to Resolution **113 (WARC-92)** the ITU-R has developed a new frequency plan for the fixed service in the 2 GHz band, set out in Recommendation ITU-R F.1098 which will facilitate the introduction of new fixed-service systems in band segments that do not overlap with the above-mentioned MSS allocations at 2 GHz;

f) that sharing between fixed-service systems using tropospheric scatter and Earth-to-space links in the MSS in the same frequency band segments is generally not feasible;

g) that some countries utilize these bands in application of Article **48** of the Constitution of the International Telecommunication Union (Geneva, 1992),

---

[1] This Resolution does not apply to the mobile service. In this respect, the use of these bands by the mobile-satellite service is subject to coordination with the mobile service under No. **[S9.11bis]**.

recognizing

a) that WARC-92 identified the bands 1 885 - 2 025 MHz and 2 110 - 2 200 MHz for worldwide use by FPLMTS, the satellite component being limited to the frequencies 1 980 - 2 010 and 2 170 - 2 200 MHz, and that the development of FPLMTS can offer great potential in helping the developing countries develop more rapidly their telecommunications infrastructure;

b) that in Resolution **22 (WARC-92)**, "Assistance to the Developing Countries to Facilitate the Implementation of Changes in Frequency Band Allocations Which Necessitate the Transfer of Existing Assignments", WARC-92 resolved to request the Telecommunication Development Bureau (BDT), when formulating its immediate plans for assistance to the developing countries, to consider the introduction of specific modifications in the radiocommunication networks of the developing countries and that a future world development conference should examine the needs of developing countries and should assist them with the resources needed to implement the required modifications to their radiocommunication networks,

resolves

1 to request administrations to notify to the Radiocommunication Bureau the basic characteristics of frequency assignments to existing or planned fixed stations requiring protection, or those typical[2] of existing and planned fixed stations brought into use before 1 January 2000 in the frequency bands 1 980 - 2 010 MHz and 2 170 - 2 200 MHz in all three Regions and 2 010 - 2 025 MHz and 2 160 - 2 170 MHz in Region 2;

2 that administrations proposing to bring an MSS system into service must take account of the fact that, when coordinating their system with administrations having terrestrial services, such administrations may have existing or planned installations covered by Article **48** of the Constitution;

3 that in respect of stations of the fixed service taken into account in the application of Resolution **46**, administrations responsible for MSS networks operating in the bands 1 980 - 2 010 MHz and 2 170 - 2 200 MHz in all three Regions and 2 010 - 2 025 MHz and 2 160 - 2 170 MHz in Region 2 shall ensure that unacceptable interference is not caused to fixed service stations notified and brought into use before 1 January 2000;

4 that to facilitate the introduction and future use of the 2 GHz bands by the MSS:

4.1 administrations are urged to ensure that frequency assignments to new fixed service systems, to be brought into operation after 1 January 2000, do not overlap with the 1 980 - 2 010 MHz and 2 170 - 2 200 MHz in all three Regions and 2 010 - 2 025 MHz and 2 160 - 2 170 MHz in Region 2 MSS allocations, for example by using the channel plans of Recommendation ITU-R F.1098;

---

[2] With respect to the notification of frequency assignments to stations in the fixed and mobile services, the characteristics of typical stations may be notified in accordance with No. [**S11.17 (1223)**] without restriction up until 1 January 2000.

4.2 administrations are urged to take all practicable steps to phase out troposcatter systems operating in the band 1 980 - 2 010 MHz in all three Regions and 2 010 - 2 025 MHz in Region 2 by 1 January 2000. New troposcatter systems shall not be brought into operation in these bands;

4.3 administrations are encouraged, where practicable, to draw up plans for the gradual transfer of the frequency assignments to their fixed service stations in the bands 1 980 - 2 010 MHz and 2 170 - 2 200 MHz in all three Regions and 2 010 - 2 025 MHz and 2 160 - 2 170 MHz in Region 2 to non-overlapping bands, giving priority to the transfer of their frequency assignments in the band 1 980 - 2 010 MHz in all three Regions and 2 010 - 2 025 MHz in Region 2. considering the technical, operational and economical aspects;

5 that administrations responsible for the introduction of mobile-satellite systems should take into account and address the concerns of affected countries, especially developing countries, to minimize the possible economic impact of transition measures in respect to existing systems;

6 to invite the Radiocommunication Bureau to provide assistance to developing countries requesting it for the introduction of specific modifications to their radiocommunication networks that will facilitate their access to the new technologies being developed in the 2 GHz band as well as in all coordination activities;

7 that administrations responsible for the introduction of mobile-satellite systems urge their mobile-satellite system operators to participate in the protection of terrestrial fixed services especially in the least developed countries,

requests

1 the ITU-R to conduct, as a matter of urgency, further studies, in conjunction with the Radiocommunication Bureau, to:

1.1 develop and provide to administrations the necessary tools in a timely manner to assess the impact of interference in the detailed coordination of mobile-satellite systems;

1.2 develop the necessary planning tools as soon as possible to assist those administrations considering a replanning of their terrestrial fixed networks in the 2 GHz range;

2 the Telecommunication Development Sector to evaluate, as a matter of urgency, the financial and economic impact on the developing countries of the transfer of fixed services, and to present its results to a future competent WRC and/or WDC,

instructs the Director of the Radiocommunication Bureau

to submit a report on the implementation of this Resolution to world radiocommunication conferences.

RESOLUTION COM5-11

REVIEW OF ALLOCATIONS TO THE MOBILE-SATELLITE SERVICE IN THE 2 GHz RANGE

The World Radiocommunication Conference (Geneva, 1995),

considering

a) that, in the Report of the Conference Preparatory Meeting (CPM-95), it was noted that over 250 mobile-satellite networks have undergone advance publication, coordination or notification to ITU in the 1 - 3 GHz range;

b) that in the Report of the CPM-95 it is estimated, based on the information available to the CPM, that the minimum and likely spectrum requirements for the global mobile-satellite service (MSS) will range from 150 MHz to 300 MHz by the year 2005;

c) that this Conference has adopted an additional allocation for Region 2 in the 2 GHz range to MSS and has developed Resolution [COM5-10] on use of the 2 GHz bands and associated transitional arrangements;

d) that administrations have varying uses of spectrum in the 2 GHz range, and that such use could lead to difficulty in coordination and sharing with the MSS;

e) that the situation described in *considering* d) above may lead to a shortfall of usable MSS spectrum and to inefficient use of spectrum that is available;

f) that in the long term it may be desirable, if further studies and consideration indicate such a necessity, to obtain common worldwide MSS allocations,

recognizing

a) that many administrations have long-term requirements to use spectrum in the 2 GHz range for existing terrestrial services that will affect transitional arrangements;

b) that many administrations plan to implement future public land mobile telecommunication systems (FPLMTS) in bands adjacent to or overlapping with the MSS bands in the 2 GHz range and certain other administrations are implementing terrestrial mobile personal communication systems in part of these bands;

c) that personal communication systems and FPLMTS on the one hand, and the MSS on the other, could complement each other;

d) that at present it is difficult to adopt uniform, primary worldwide MSS allocations in the 2 GHz range with a common access date;

e) that current technology allows satellites to operate in different bands in different Regions,

resolves

to review, at the 1997 World Radiocommunication Conference (WRC-97), the MSS allocations in the 2 GHz range that result from the decisions of this Conference, with a view to harmonizing in the long term, if necessary, common, primary worldwide MSS allocations in the 2 GHz range, having due regard for the continuing protection of terrestrial services,

urges administrations

to review their specific situations in order to assist, if necessary, in the long-term development of common, primary worldwide MSS allocations in the 2 GHz range,

instructs the Director of the Radiocommunication Bureau

to propose to the Council that it place the issues raised in this Resolution on the agenda of WRC-97, in order to assess the situation in the 2 GHz range at that time.

RECOMMENDATION 100(Rev.WRC-95)

PREFERRED FREQUENCY BANDS FOR SYSTEMS USING TROPOSPHERIC SCATTER

The World Radiocommunication Conference (Geneva, 1995),

considering

a) the technical and operational difficulties pointed out by Recommendation ITU-R F.698 in the frequency bands shared by tropospheric scatter systems, space systems and other terrestrial systems;

b) the additional allocation of frequency bands made by the World Administrative Radio Conference (Geneva, 1979) (WARC-79) and the World Administrative Radio Conference (Malaga-Torremolinos, 1992) (WARC-92) for the space services in view of their increasing development;

c) that the Radiocommunication Bureau requires administrations to supply specific information on systems using tropospheric scatter in order to verify compliance with certain provisions of the Radio Regulations (such as Nos. [**763**] **S5.417** [**2560** and **2564**] and **S21.16**),

recognizing nevertheless

that, to meet certain telecommunication requirements, administrations will wish to continue using tropospheric scatter systems,

noting

that the proliferation of such systems in all frequency bands and particularly in those shared with space systems is bound to aggravate an already difficult situation,

recommends that administrations

1 for the assignment of frequencies to new stations in systems using tropospheric scatter, take into account the latest information prepared by ITU-R to ensure that systems established in the future use a limited number of certain frequency bands;

2 in frequency assignment notifications to the Radiocommunication Bureau, indicate expressly whether they relate to stations of tropospheric scatter systems,

instructs the Director of the Radiocommunication Bureau

to report on the application of this Recommendation to the 1997 World Radiocommunication Conference (WRC-97),

invites the Council

to make the necessary arrangements for a future world radiocommunication conference to consider the frequency bands of the fixed service which shall be preferred for use by the new tropospheric scatter systems, taking into account the allocations to space radiocommunication services and the relevant ITU-R Recommendations.

RECOMMENDATION 717 (REV.WRC-95)

FREQUENCY SHARING IN BANDS SHARED BY THE MOBILE-SATELLITE SERVICE AND THE FIXED, MOBILE AND OTHER TERRESTRIAL SERVICES BELOW 3 GHz

The World Radiocommunication Conference (Geneva, 1995),

considering

a) that the World Administrative Radio Conference (Malaga-Torremolinos, 1992) made frequency allocations for the mobile-satellite service shared with other terrestrial services below 3 GHz;

b) that this Conference has adopted sharing criteria for these bands allocated to the mobile-satellite service which require further examination;

c) that both geostationary and non-geostationary satellites may be operated in the mobile-satellite service;

d) that the Radiocommunication Assembly (Geneva, 1995) approved Recommendations ITU-R IS.1141, IS.1142 and IS.1143, while identifying certain issues related to frequency sharing between the mobile-satellite service and terrestrial services requiring further study, some of them urgent (see Questions ITU-R 201/8 and 118-1/9),

recommends that ITU-R

study the remaining and urgent issues relating to frequency sharing between the mobile-satellite service and terrestrial services below 3 GHz and report to the 1997 World Radiocommunication Conference (WRC-97) through the Conference Preparatory Meeting,

recommends that administrations

submit contributions relating to these studies to ITU-R, as a matter of urgency,

recommends that the 1997 World Radiocommunication Conference

address the above issues and take appropriate action on them.

RECOMMENDATION GT PLEN-A

TECHNICAL PARAMETERS FOR USE IN THE REVISION OF APPENDICES 30 AND 30A IN RESPONSE TO RESOLUTION 524 (WARC-92)

The World Radiocommunication Conference (Geneva, 1995),

considering

that the 1997 World Radiocommunication Conference (WRC-97) will take action, as appropriate, on the revision of Appendices **30** and **30A** for Regions 1 and 3 in response to Resolution **524 (WARC-92)**,

noting

a) the requirements of Resolution **524 (WARC-92)**;

b) the work carried out by the study groups and the Conference Preparatory Meeting of the Radiocommunication Sector,

recognizing

that it will be necessary to have improved technical parameters for both Appendices **30** and **30A** if the Plans resulting from the decisions of this Conference and WRC-97 are to be best able to satisfy the requirements of Resolution **524 (WARC-92)**,

recommends

1 that the following technical parameters be used in preparation for WRC-97 actions on the revision of Appendices **30** and **30A**:

1.1 e.i.r.p. planning values: a general reduction of 5 dB from the levels listed in Appendix **30**;

1.2 use of an improved receive earth station reference antenna pattern based on Recommendation ITU-R BO.1213;

1.3 simultaneous planning of feeder links and downlinks, with calculation of overall equivalent protection margins;

1.4 aggregate C/I ratio values of:

- co-channel 23 dB, with no single-entry C/I lower than 28 dB;
- adjacent channel 15 dB;

2 that these updated parameters be applied to possible revisions to assignments not operating or notified; operating or notified systems, to the extent they are in accordance with Appendices **30** and **30A**, will only be adjusted if the administrations concerned with such systems agree;

3 that the general e.i.r.p. reduction in *recommends* 1.1 above be applied, but for countries in high rainfall climatic zones adequate e.i.r.p. levels will be maintained.

RECOMMENDATION GT PLEN-B

THE FLEXIBLE AND EFFICIENT USE OF THE RADIO SPECTRUM BY FIXED AND SOME MOBILE SERVICES IN THE MF AND HF BANDS USING BLOCK ALLOCATIONS FOR ADAPTIVE SYSTEMS

The World Radiocommunication Conference (Geneva, 1995),

considering

a) that the 1997 World Radiocommunication Conference (WRC-97) is recommended to consider improvements in the regulation and frequency management of the fixed service and of some of the mobile services in the frequency range between about 1.6 and 28 MHz;

b) that No. **339 [S4.1]** of the Radio Regulations requires, *inter alia*, that Members shall endeavour to limit the number of frequencies and the spectrum space used to the minimum essential and to apply the latest technical advances as soon as possible;

c) that HF fixed and mobile services are meeting increasing congestion and interference;

d) that new frequency management techniques are becoming available, employing newly available equipment techniques which could improve the spectrum utilization and quality of systems operating at HF,

noting

that Question ITU-R [XC/1A] is being studied by ITU-R Study Group 1,

recognizing

that further studies are essential to permit the introduction of frequency agile equipment coupled with the power of digital signal processing for frequency control and error-correction techniques,

instructs the Director of the Radiocommunication Bureau

to ensure, in consultation with the study group Chairmen, that the studies now in hand are completed as a matter of urgency and in time for WRC-97,

recommends

that administrations participate actively in these studies.

RECOMMENDATION COM4-A

PRINCIPLES FOR THE ALLOCATION OF FREQUENCY BANDS

The World Radiocommunication Conference (Geneva, 1995),

considering

a) that ITU should maintain an international Table of Frequency Allocations covering the usable radio-frequency spectrum;

b) that it may be desirable, in certain cases, to allocate frequency bands to the most broadly defined services in order to improve flexibility of use but without detriment to other services;

c) that the development of common worldwide allocations is desirable in order to improve and harmonize utilization of the radio-frequency spectrum;

d) that adherence to these principles for the allocation of spectrum will allow the Table of Frequency Allocations to focus on matters of regulatory significance while enabling greater flexibility in national spectrum use,

recommends that future world radiocommunication conferences

1 should, wherever possible, allocate frequency bands to the most broadly defined services with a view to providing the maximum flexibility to administrations in spectrum use, taking into account safety, technical, operational, economic and other relevant factors;

2 should, wherever possible, allocate frequency bands on a worldwide basis (aligned services, categories of service and frequency band limits) taking into account safety, technical, operational, economic and other relevant factors;

3 should take into account relevant studies by the Radiocommunication Sector and the reports of the relevant Conference Preparatory Meetings,

recommends administrations

in making proposals to world radiocommunication conferences, to take account of *recommends* 1 to 3,

instructs the Director of the Radiocommunication Bureau and requests the ITU-R study groups

1 when carrying out technical studies relating to a frequency band, to examine the compatibility of a broad definition of services with the existing utilizations and the possibility of aligning allocations on a worldwide basis, having regard to *considerings* a), b), c) and d) and *recommends* 1, 2 and 3 above;

2 to conduct these studies, where appropriate in cooperation with the International Civil Aviation Organization (ICAO) and the International Maritime Organization (IMO);

3 to submit a report to future world radiocommunication conferences containing the results of these studies,

invites

the relevant Conference Preparatory Meetings and ITU-R study groups to identify areas for study and to undertake the studies necessary to determine the impact on existing services of those agenda items of future world radiocommunication conferences which involve broadening the scope of existing service allocations,

instructs the Secretary-General

to communicate this Recommendation to ICAO and IMO.

RECOMMENDATION COM4-B

PROCEDURES FOR MODIFICATION OF A FREQUENCY ALLOTMENT OR ASSIGNMENT PLAN

The World Radiocommunication Conference (Geneva, 1995),

considering

a) that preceding conferences have developed plans;

b) that these plans may relate to assignments or to allotments;

c) that assignment and allotment plans fundamentally differ as to the complexity of their maintenance;

d) that, in addition to worldwide plans, regional plans exist catering for specialized needs in particular parts of the world,

considering in particular

a) that the Voluntary Group of Experts (VGE) is to be commended for undertaking the development of a procedure (Article **S10**) to be applied for modification of any type of plan;

b) the difficulties presently faced by administrations, which have to be involved in the application of a large number of different procedures, and the need to reduce the number and complexity of such procedures;

c) that the question of universal applicability of one single procedure requires greater consideration than most,

noting

a) that VGE Recommendation 2/5 foresaw that the 1997 World Radiocommunication Conference (WRC-97) might consider that Recommendation with respect to its possible applicability to Appendices **30** and **30A**;

b) that the VGE foresaw the need to decide upon that Recommendation before considering the applicability of Article **S10**;

c) that Appendix **S6** of the VGE Report, which is associated with Article **S10**, would have to be developed further if Article **S10** was to apply to Appendices **25**, **30** and **30A**;

d) that this Conference has developed a modified version of Article **S10** aimed at resolving the aforementioned difficulties, as set out in the Annex hereto;

e) that the modification procedure for Appendix **25**, as contained in Article **16** of the Radio Regulations, has been satisfactorily applied for several years;

f) that this Conference, in reviewing the VGE Report, has decided to incorporate the existing modification procedure for Appendix **25** within that Appendix, thereby rendering it self-contained for simplification of use;

g) that this Conference, in reviewing the VGE Report, has decided to defer to a future world radiocommunication conference the question of whether Article **S10** could be applied to Appendices **30** and **30A**;

h) that, in the light of the foregoing and having regard to the VGE Report, no further action is required on Appendix **S6**, and the provisions of Appendices **30** and **30A** shall continue in force;

i) that this Conference, in reviewing the VGE Report, has decided not to modify Appendices **26**, **27** and **30B**;

j) that the matter of one universal modification procedure for all plans, or all subsequent plans, has not sufficiently matured to permit a decision to be taken at this Conference,

recommends

that the plan modification procedure, contained in the Annex to this Recommendation for information purposes, be considered by future world or regional radiocommunication conferences for possible application for modification of the plans.

ANNEX

(to Recommendation COM4-B)

Possible Procedure for Modification of a Frequency Allotment or Assignment Plan

T10.1

For the frequency allotment or assignment Plans contained in Appendices to these Regulations, the Bureau shall maintain the master copies of the Plans, incorporating any agreed modifications, and shall provide such copies in an appropriate form for publication by the Secretary-General when justified by circumstances.

T10.2

Before notifying any assignment which is subject to a plan the administration shall ensure that it is in conformity with the Plan.[1] If the assignment is not in conformity the administration shall apply the procedure[2] to effect an appropriate modification to the Plan by seeking the agreement of the administrations, which are identified in accordance with Appendix S6, as having planned allotments or assignments which may be affected by the proposed modification.

T10.2.1

[1] An assignment is subject to a plan when it is for a station in a radiocommunication service and in a frequency band and in a geographical area covered by a plan. An assignment is in conformity with the Plan, if it appears in the Plan, or corresponds to an allotment in the Plan, or if the procedure for modification of the Plan has been successfully applied.

T10.2.2

[2] Where an existing Plan contains a supplementary or alternative procedure that procedure shall continue to be applied.

T10.3

A proposed modification to a plan may consist of:

T10.4

a) a change in the characteristics of an entry in the Plan; or

T10.5

b) the inclusion of a new entry in the Plan; or

T10.6

c) the cancellation of an entry in the Plan.

T10.7 Before an administration proposes to include in the Plan under the provisions of **T10.5**, a new frequency assignment to a space station or to include in the Plan new frequency assignments to a space station whose orbital position is not designated in the Plan for this administration, all the assignments to the service area involved should normally have been brought into service or have been notified to the Bureau in accordance with the relevant provisions of the Plan. Should this not be the case, the administration concerned shall inform the Bureau of the reasons therefor.